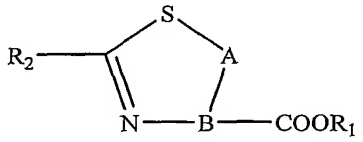
CLAIMS

1. A method of inhibiting intracellular translation of viral mRNAs into viral proteins required for virion assembly and infectivity, comprising:

administering, to eukaryotic cells, tissues, or individuals, an agent which blocks the accumulation of spliced and unspliced viral transcripts and their utilization for viral protein synthesis at cellular ribosomes.

2. The method of Claim 1 wherein the agent is administered topically.

3. The method of Claim 1 wherein the agent comprises a compound of formula (I)



(I)

where

R_1 is hydrogen or a pharmacologically acceptable salt;

R_2 is ortho-hydroxy-substituted phenyl or pyridyl, where the phenyl or pyridyl group is otherwise unsubstituted or substituted with 1 to 3 additional substituents selected from the group consisting of (C_1-C_6) alkyl, phenyl, (C_1-C_6)alkoxy, halogen or hydroxyl; and

A-B is -CH_2-CR_3- or –CH=C-, where R_3 is hydrogen or (C_1-C_6)alkyl.

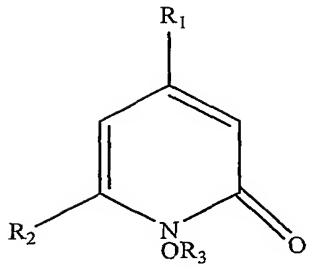
4. The method of Claim 3 wherein R_1 is hydrogen, R_2 is phenyl, A-B is –CH=CR_3- and R_3 is hydrogen.

5. The method of Claim 3 wherein R_1 is hydrogen and R_2 is pyridyl.

6. The method of Claim 3 wherein R_1 is hydrogen, R_2 is phenyl, A-B is CH=C- and R_3 is hydrogen.

7. The method of Claim 1 wherein the agent comprises a compound of formula (II)

8.



(II)

wherein

R_1 is $(C_1\text{-}C_6)$ alkyl;

R_2 is $(C_1\text{-}C_{10})$ straight or branched alkyl, $(C_3\text{-}C_6)$cycloalkyl or phenoxy$(C_1\text{-}C_3)$alkyl, where the phenoxy group is substituted by substituted or unsubstituted phenoxy; and

R_3 is hydrogen or a pharmacologically acceptable salt.

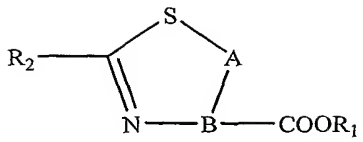
8. The method of claim 7 wherein R_1 is methyl.

9. A method of inhibiting the utilization of spliced and unspliced viral transcripts for viral protein synthesis at cellular ribosomes comprising:

administering, to eukaryotic cells, tissues, or individuals, an agent which blocks hypusine formation within eIF5A in an amount sufficient to suppress the translationally productive interaction of eIF-5A with viral elements of nucleic acid and/or protein structure.

10. The method of Claim 9 wherein the agent is administered topically.

11. The method of Claim 9 wherein the agent comprises a compound of formula (I)



(I)

where

R_1 is hydrogen or a pharmacologically acceptable salt;

R_2 is ortho-hydroxy-substituted phenyl or pyridyl, where the phenyl or pyridyl group is otherwise unsubstituted or substituted with 1 to 3 additional substituents selected from the group consisting of (C_1-C_6) alkyl, phenyl, (C_1-C_6)alkoxy, halogen or hydroxyl; and

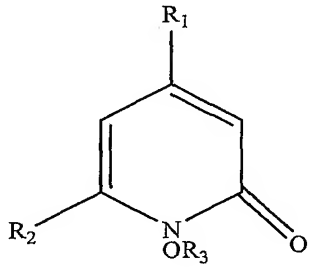
A-B is -CH_2-CR_3- or –CH=C-, where R_3 is hydrogen or (C_1-C_6)alkyl.

12. The method of Claim 11 wherein R_1 is hydrogen, R_2 is phenyl, A-B is –CH=CR_3- and R_3 is hydrogen.

13. The method of Claim 11 wherein R_1 is hydrogen and R_2 is pyridyl.

14. The method of Claim 11 wherein R_1 is hydrogen, R_2 is phenyl, A-B is CH=C- and R_3 is hydrogen.

15. The method of Claim 9 wherein the agent comprises a compound of formula (II)



(II)

wherein

R_1 is (C_1-C_6) alkyl;

R_2 is (C_1-C_{10}) straight or branched alkyl, (C_3-C_6)cycloalkyl or phenoxy(C_1-C_3)alkyl, where the phenoxy group is substituted by substituted or unsubstituted phenoxy; and

R_3 is hydrogen or a pharmacologically acceptable salt.

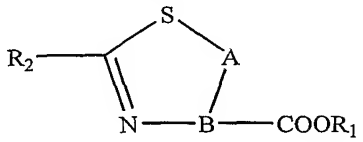
16. The method of claim 15 wherein R_1 is methyl.

17. A method of inhibiting synthesis of specific viral proteins of Rev/Rex-dependent lentiviruses, or of viruses dependent on interaction of eIF-5A with viral elements of nucleic acid and/or protein structure comprising:

administering, to eukaryotic cells, tissues, or individuals, an agent which blocks hypusine formation and thus eIF5A function in an amount sufficient to inhibit biosynthesis of viral proteins of Rev/Rex-dependent lentiviruses or of viruses dependent on interaction of eIF-5A with viral elements of nucleic acid and/or protein structure.

18. The method of Claim 17 wherein the agent is administered topically.

19. The method of Claim 17 wherein the agent comprises a compound of formula (I)



(I)

where

R_1 is hydrogen or a pharmacologically acceptable salt;

R_2 is ortho-hydroxy-substituted phenyl or pyridyl, where the phenyl or pyridyl group is otherwise unsubstituted or substituted with 1 to 3 additional substituents selected from the group consisting of (C_1-C_6) alkyl, phenyl, (C_1-C_6)alkoxy, halogen or hydroxyl; and

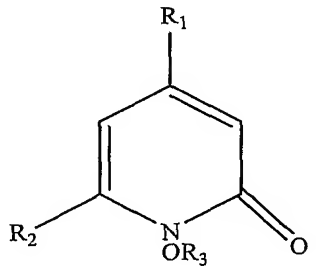
A-B is -CH_2-CR_3- or –CH=C-, where R_3 is hydrogen or (C_1-C_6)alkyl.

20. The method of Claim 17 wherein R_1 is hydrogen, R_2 is phenyl, A-B is –CH=CR_3- and R_3 is hydrogen.

21. The method of Claim 17 wherein R_1 is hydrogen and R_2 is pyridyl.

22. The method of Claim 17 wherein R_1 is hydrogen, R_2 is phenyl, A-B is CH=C- and R_3 is hydrogen.

23. The method of Claim 15 wherein the agent comprises a compound of formula (II)



(II)

wherein

R_1 is (C_1-C_6) alkyl;

R_2 is (C_1-C_{10}) straight or branched alkyl, (C_3-C_6)cycloalkyl or phenoxy(C_1-C_3)alkyl, where the phenoxy group is substituted by substituted or unsubstituted phenoxy; and

R_3 is hydrogen or a pharmacologically acceptable salt.

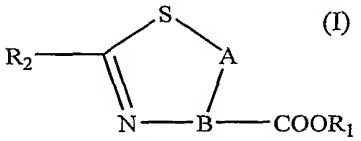
24. The method of claim 23 wherein R_1 is methyl.

25. A method of inhibiting replication of Rev/Rex-dependent lentiviruses, or viruses dependent on interaction of eIF-5A with viral elements of nucleic acid and/or protein structure comprising:

administering, to eukaryotic cells, tissues, or individuals, an agent which blocks hypusine formation and thus eIF5A function or reduces the availability of Rev/Rex protein, in an amount sufficient to inhibit replication of Rev/Rex-dependent lentiviruses or of viruses dependent on interaction of eIF-5A with viral elements of nucleic acid and/or protein structure.

26. The method of Claim 25 wherein the agent is administered topically.

27. The method of Claim 25 wherein the agent comprises a compound of formula (I)



(I)

where

R_1 is hydrogen or a pharmacologically acceptable salt;

R_2 is ortho-hydroxy-substituted phenyl or pyridyl, where the phenyl or pyridyl group is otherwise unsubstituted or substituted with 1 to 3 additional substituents selected from the group consisting of (C_1-C_6) alkyl, phenyl, (C_1-C_6)alkoxy, halogen or hydroxyl; and

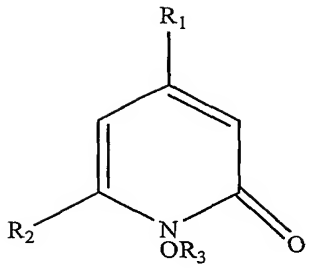
A-B is -CH_2-CR_3- or –CH=C-, where R_3 is hydrogen or (C_1-C_6)alkyl.

28. The method of Claim 27 wherein R_1 is hydrogen, R_2 is phenyl, A-B is –CH=CR_3- and R_3 is hydrogen.

29. The method of Claim 27 wherein R_1 is hydrogen and R_2 is pyridyl.

30. The method of Claim 27 wherein R_1 is hydrogen, R_2 is phenyl, A-B is CH=C- and R_3 is hydrogen.

31. The method of Claim 25 wherein the agent comprises a compound of formula (II)



(II)

wherein

R_1 is (C_1-C_6) alkyl;

R_2 is (C_1-C_{10}) straight or branched alkyl, (C_3-C_6)cycloalkyl or phenoxy(C_1-C_3)alkyl, where the phenoxy group is substituted by substituted or unsubstituted phenoxy; and

R_3 is hydrogen or a pharmacologically acceptable salt.

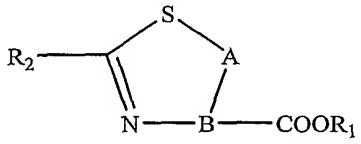
32. The method of claim 31 wherein R_1 is methyl.

33. A method of inducing apoptosis in cells infected with Rev/Rex-dependent lentiviruses or viruses dependent on interaction of eIF-5A with viral elements of nucleic acid and/or protein structure comprising:

administering, to cells infected with such viruses, an agent which blocks intracellular hypusine formation or reduces the availability of Rev/Rex protein, in an amount sufficient to induce apoptotic ablation of virally-infected cells.

34. The method of Claim 33 wherein the agent is administered topically.

35. The method of Claim 33 wherein the agent comprises a compound of formula (I)



(I)

where

R_1 is hydrogen or a pharmacologically acceptable salt;

R_2 is ortho-hydroxy-substituted phenyl or pyridyl, where the phenyl or pyridyl group is otherwise unsubstituted or substituted with 1 to 3 additional substituents selected from the group consisting of (C_1-C_6) alkyl, phenyl, (C_1-C_6)alkoxy, halogen or hydroxyl; and

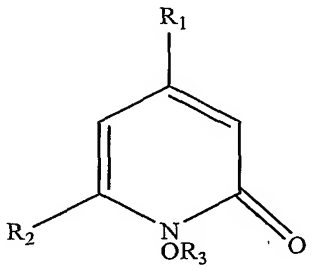
A-B is -CH_2-CR_3- or –CH=C-, where R_3 is hydrogen or (C_1-C_6)alkyl.

36. The method of Claim 35 wherein R_1 is hydrogen, R_2 is phenyl, A-B is $-CH=CR_3-$ and R_3 is hydrogen.

37. The method of Claim 35 wherein R_1 is hydrogen and R_2 is pyridyl.

38. The method of Claim 35 wherein R_1 is hydrogen, R_2 is phenyl, A-B is CH=C- and R_3 is hydrogen.

39. The method of Claim 35 wherein the agent comprises a compound of formula (II)



(II)

wherein

R_1 is $(C_1\text{-}C_6)$ alkyl;

R_2 is $(C_1\text{-}C_{10})$ straight or branched alkyl, $(C_3\text{-}C_6)$cycloalkyl or phenoxy$(C_1\text{-}C_3)$alkyl, where the phenoxy group is substituted by substituted or unsubstituted phenoxy; and

R_3 is hydrogen or a pharmacologically acceptable salt.

40. The method of claim 31 wherein R_1 is methyl.

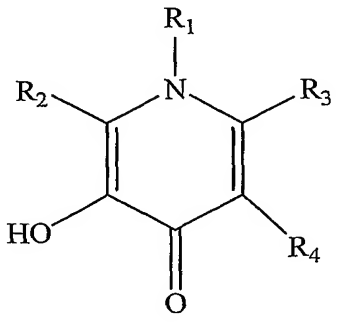
41. A method according to claim 1, wherein said administering is carried out topically or systemically.

42. A method according to claim 1 wherein said administering is carried out by percutaneous, oral, intravascular, intramuscular, intraperitoneal, intrathecal, or subcutaneous application, or ocular and mucous membrane administration.

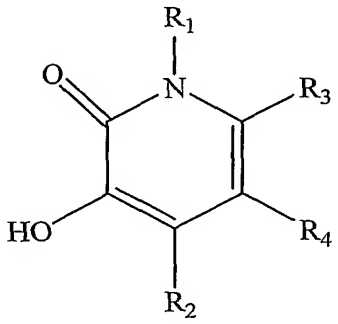
43. A method according to claim 27, wherein the Rev-dependent lentivirus or virus dependent on interaction of host cell eIF-5A with viral elements of nucleic acid and/or protein structure, is selected from the group consisting of the human immunodeficiency viruses, the human T-cell leukemia viruses, the hepatitis B virus, the simian immunodeficiency viruses, the bovine immunodeficiency viruses, the feline immunodeficiency viruses, visna virus, equine infectious anemia virus, caprine arthritis-encephalitis virus, and Mason-Pfizer virus.

44. A method according to claim 43, wherein said method is used to inhibit human immunodeficiency viruses.

45. A method for suppressing genital transmission of human immunodeficiency virus which comprises administering to a male or female genital a compound of formula III or IV



(III)



(IV)

wherein R_1, R_2, R_3, and R_4 each individually represent a hydrogen, an alkyl, alkenyl or alkoxy group containing 1 to about 8 carbons, an aryl, aralkyl, or cycloalkyl group containing about 5 to 12 carbon atoms, or a carboalkoxy or carbamyl group containing up to 8 carbon atoms, or a peptide or peptidomimetic moiety containing 10 to about 30 carbon atoms.

46. The method of Claim 45 wherein the compound is deferiprone.